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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/598,434	06/22/2000	Charles Robert Moore	AT9-99-451	5583

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EXAMINER

CHANG, JUNGWON

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 10/06/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/598,434

Applicant(s)

MOORE, CHARLES ROBERT

Examiner

Jungwon Chang

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-23 are presented for examination.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 3 and 10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3 and 10 of copending Application No. 09/598,435 (hereinafter 435). Although the conflicting claims are not identical, they are not patentably distinct from each other because both data processing systems comprise substantially same elements. The difference between the 435 application and present application is the claimed "first load instruction and second load instruction", and "load-reserve instruction". Although present application did not use a word load-reserve instruction, it would have been obvious to one of ordinary skill in the art that the load-reserve instruction is well known in the multiprocessor computer

system wherein the processing units have multi-level caches that is supporting portions of specification in the present application on page 3, lines 3-4 (i.e., load instruction targets an address specified in a marked entry (i.e., load-reservation) in the load queue), page 7, lines 13-29, page 12, line 29 – page 13, line 31 and Figure 2.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glew et al. (US 5,913,048), hereinafter Glew, in view of Webb, Jr. et al, hereinafter Webb.

6. As to claims 1-3 and 18, Glew discloses the invention substantially as claimed, including a processor (100, fig. 1; col. 3, lines 45-49), comprising:

a register set (150, fig. 1; col. 4, lines 16-23);

at least one execution unit (118, fig. 1) that executes load instructions to transfer data into said register set (col. 4, lines 35-40; col. 5, lines 22-45);

a load queue containing at least one entry, wherein said entry stores load data retrieved by a first load instruction (136, fig. 5; col. 11, lines 1-17); and

queue management logic that, responsive to execution of a second load instruction, detects by reference to said load queue whether a data hazard exist (i.e., out of order; col. 6, lines 48-56).

7. Glew does not specifically disclose outputs said load data retrieved by said first load instruction from said entry to said register set in accordance with said second load instruction. However, Webb discloses outputs said load data retrieved by said first load instruction from said entry to said register set in accordance with said second load instruction (col. 1, line 66 – col. 2, line 15; col. 4, lines 43-48; col. 7, lines 61-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Glew and Webb because Webb's bypass mechanism would improve program efficiency by reducing the false dependencies and instruction stalls.

8. As to claim 10, it is rejected for the same reasons set forth in claims 1-3 above. In addition, Glew discloses an interconnect fabric (158, fig. 1); a memory coupled to said interconnected fabric (175, fig. 1).

9. As to claims 4, 5, 11, 12, 19 and 20, Glew further discloses the entry stores a target address of said first load instruction (LDST of 136, fig. 5) and has a hazard flag

indicative of a possible data hazard (V of 136, fig. 5, col. 11, lines 10-17).

10. As to claims 6 and 14, Glew discloses register set comprising a general purpose register set (150, fig. 1; col. 4, lines 16-23).

11. As to claims 7 and 15, Glew discloses the queue management logic outputs said load data to a register in said

12. As to claims 8, 16 and 22, Glew discloses the queue management logic, responsive to detection of a data hazard, initiates re-execution of at least said first load instruction (col. 6, lines 62-65).

13. As to claims 9, 17 and 23, Glew discloses the queue management logic allocates a respective entry within said load queue to each load instruction upon dispatch and upon completion of said each load instruction, deallocates said respective entry (fig. 4; col. 9, line 48 – col. 10, line 5).

14. As to claim 13, Glew discloses a register set (150, fig. 1; col. 4, lines 16-23); at least one execution unit (118, fig. 1) that executes load instructions to transfer data into said register set (col. 4, lines 35-40; col. 5, lines 22-45); load queue comprises a first processor and the data processing system includes a second processor (col. 2, lines 40-44).

15. As to claim 21, it is rejected for the same reasons set forth in claims 1-3 and 18 above.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Ronchetti et al, patent 6,301,654 B1, Feiste et al, patent 6,349,382 B1, Cheong et al, patent 6,553,480 B1, Chan et al, patent 6,282,637 B1, Keller et al, patent 6,622,235 B, Ranson, patent 6,009,539 disclose a method and system for execution of out-of-order load and store instructions.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jungwon Chang whose telephone number is (703)305-9669. The examiner can normally be reached on 9:30-6:00 (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703)308-9052. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-9669.

Jungwon Chang
September 26, 2003

A handwritten signature in black ink, appearing to read "N. E. Hachy", with a long, sweeping vertical stroke extending downwards from the end of the signature.